REMARKS

Summary of the Amendment

Upon entry of the amendment, Claims 7 and 24 will have been amended. Claims 34-41 will have been added. Therefore, Claims 7-10 and 24-41 currently remain pending.

Summary of the Office Action

In the Office Action, Claims 7, 24, and 27-30 were rejected under 35 U.S.C. § 102(b) over the art of record. Claims 8-10, 25-26, and 31-33 were rejected under 35 U.S.C. § 103(a) over the art of record. By the present Amendment and Remarks, Applicant submits that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

Traversal of Rejection Under 35 U.S.C. § 102(b)

Applicant traverses the rejection of Claims 7, 24, and 27-30 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,504,510 to Miyakawa (hereinafter "MIYAKAWA").

A. Review of MIYAKAWA

As understood, MIYAKAWA is directed toward an ink refilling method and an ink refilling apparatus 15 that utilizes a lever and piston combination to produce pressure changes that result in ink flow from a refilling ink cartridge 33 to a recording ink cartridge 1. As discussed in column 1, lines 23-25, MIYAKAWA mentions that the ink refilling apparatus 15 may be used to refill recording ink cartridge 1, which is traditionally required in a recording apparatus (hereinafter "printer") of Figure 1 such as a wired dot type printer.

As discussed in the majority of detailed description of MIYAKAWA (see columns 9-20), the principle invention appears to be the ink refilling apparatus 15. Accordingly, the first claim of MIYAKAWA is directed toward "[a]n ink refilling apparatus for loading ink into a recording ink cartridge . . . ." See MIYAKAWA, Claim 1.

1. The Printer Does not Apparently Communicate With the Ink Refilling Apparatus

As understood, the printer of Figure 1 does not apparently communicate with the ink refilling apparatus 15. It appears that the ink refilling apparatus 15 independently refills the recording ink cartridge 1 through pressure changes caused by the lever-driven movement of a piston. See id., columns 9-13.

As stated in column 9, lines 4-7, "[t]he ink refilling or reloading apparatus of FIG. 4 may be disposed in the printer of Figure 1 or may be separate from the printer of Figure 1, in accordance with the necessity or requirement." However, MIYAKAWA nowhere states that the printer of Figure 1 operates in response to the ink refilling apparatus 15.

The ink refilling apparatus 15 may also be used in while it is disposed within the printer of Figure 1. The preamble of Claim 3 of MIYAKAWA recites an "ink jet [printer] of Figure 1 having recording means for effecting recording by ejecting ink from a recording ink cartridge 1 having an ink discharging portion and an air vent to a recording material . . . ." Claim 3 further claims "a filling ink cartridge containing ink to be loaded into the recording ink cartridge 1," which is an element of the ink refilling apparatus 15. Therefore, Claim 3 apparently seeks to cover a modified printer of Figure 1 that includes an ink refilling apparatus 15 is disposed therein. Apparently, the advantage of utilizing the ink refilling apparatus 15 disposed in the printer of Figure 1 is that the recording ink cartridge 1 may be refilled by the refilling ink cartridge 33 instead of refill it after removal. However, MIYAKAWA does not indicate that the ink refilling apparatus 15 communicates with the printer of Figure 1 or vice versa. Simply, the ink refilling apparatus 15 is used to independently refill the recording ink cartridge 1. See MIYAKAWA, columns 9-13.

2. The MIYAKAWA Refilling Apparatus Apparently Monitors the Cartridge Service Life

As understood, MIYAKAWA also teaches that the ink refilling mechanism, and not the printer, monitors the service life of the recording ink cartridge 1. The purpose and structure of such monitoring is described in MIYAKAWA:

> FIG. 19 illustrates the system structure and the operation of an ink refilling apparatus 15 according to a sixth embodiment of the present

> invention. In this embodiment, . . . there is provided a structure for providing identification marking with the recording ink cartridge 1. The marking carries the history of the refilling. The marking is added every filling operations. By doing so, the user is notified with the arrival of the limit of the service life of the part.

MIYAKAWA, column 16, lines 26-34 (emphasis added).

Thus, the ink refilling apparatus 15 apparently monitors recording ink cartridge 1 service life utilizing a marking scheme. The ink refilling apparatus 15 marks the recording ink cartridge 1 each time the recording ink cartridge 1 is refilled in order for the user to know when the recording ink cartridge 1 has reached its service life and must be discarded.

An alternative monitoring scheme is also suggested. MIYAKAWA teaches that prior to performing a refilling operation, the ink refilling apparatus 15 may detect whether or not the recording ink cartridge 1 should be refilled. The ink refilling apparatus 15 makes this determination by detecting the resistance of a detection pattern disposed on the recording ink cartridge 1 in order to determine the number of filling operations the recording ink cartridge 1 has undergone:

> In FIG. 19, a pattern (detection pattern) for recording 71 is provided to a part of the recording ink cartridge 1, and by detecting the resistance of the pattern 71, the number of the filling operations is known. . . . Then, the stored information and the service life number may be compared so that the discrimination is made as to whether or not the number of the filling operations is not more than the predetermined number or not (whether the service life is reached or not). Thereafter, the ink filling operation is carried out.

Id. at column 16, lines 39-58 (emphasis added).

3. The Detection Pattern Accounts for the Number of Refills

In order to monitor the number of refills of the recording ink cartridge 1, MIYAKAWA apparently teaches that the detection pattern 71 may be altered by a pattern changing mechanism 72:

> If the number is not more than a predetermined number, a part of the pattern 71 is changed by a pattern changing mechanism 72 (by cutting a part, for example). Thereafter, the ink filling operation is

> carried out. Alternatively, by reading an inherent identification (Serial No., for example) or the like of the recording ink cartridge 1, the history of the refilling operations may be stored in the main apparatus.

Id. at column 16, lines 41-48 (emphasis added).

As indicated by the text cited above (column 16, lines 41-49), the pattern changing mechanism 72 apparently operates by "cutting a part" of the detection pattern 71. Nevertheless, the text fails to disclose any enabling embodiments of this teaching. It is possible that such "cutting" simply provides a visual indication to the user that the recording ink cartridge 1 has reached its maximum service life, as indicated in column 16, lines 26-34, which are discussed above. As shown in the following magnified view of Figure 19, MIYAKAWA might teach the detection pattern 71 to be a circuit with a resistance dependant upon the number of operable loops, which therefore allows the "resistance of the pattern" to be detected. Nevertheless, this is unclear and not enabled by the specification.

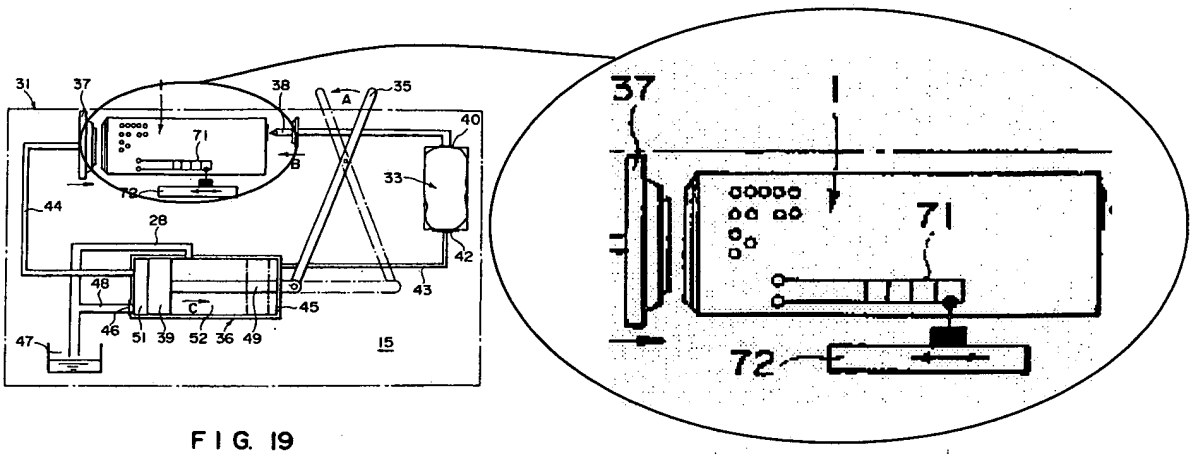

FIG. 19

Magnified View of Fig. 19

Thus, if the pattern changing mechanism 72 "cut[s] a part" of the detection pattern 71, the resistance of the detection pattern 71 may change. However, MIYAKAWA does not appear to teach how a resistance is determined in the detection pattern 71. As understood,

MIYAKAWA never indicates how the resistance is affected by "cutting a part" of the detection pattern 71.

B. In re independent Claim 7 (and dependent Claims 24 and 27-30)

As amended, the Applicant's independent Claim 7 recites, *inter alia*, *a printer readable resistive ink identifier . . . having a resistive value corresponding to at least one characteristic of the ink ribbon, the resistive value being utilizable to define at least one printer operational parameter in correlation to the characteristic of the ink ribbon.* Applicant respectfully submits that MIYAKAWA at least does not teach or disclose "defin[ing] at least one printer operational parameter," a "printer readable resistive ink identifier," or correspondence to a "characteristic of the ink ribbon."

There appear to be two possible scenarios in which the Examiner might logically apply the MIYAKAWA teachings to the present invention as is now currently recited in independent Claim 7 to support an anticipation rejection. In particular, it can be foreseen that (1) the Examiner may consider the detection pattern 71 of MIYAKAWA to disclose the "printer readable resistive ink identifier" feature recited in Claim 7, and (2) the Examiner may consider that the detection pattern 71 is utilized for the same manner as the "printer readable resistive ink identifier" feature recited in Claim 7. For the reasons mentioned herein, Applicant respectfully submits that such conclusions would be improper and therefore requests that the Examiner allow Claim 7.

1. The Detection Pattern 71 Does not Apparently Define a Printer Operational Parameter

MIYAKAWA does not apparently teach utilizing the resistive value "to define at least one printer operational parameter" as recited in Claim 7. As mentioned *supra*, the detection pattern 71 is utilized to indicate the number of refills of the recording ink cartridge 1. However, the detection pattern 71 does not indicate or determine any printer operational parameter.

Although the detection pattern 71 of MIYAKAWA indicates *something* to *some device*, i.e., the number of refills to the ink refilling apparatus 15, neither the *something*

nor the *some device* disclose "defin[ing] at least one printer operational parameter." MIYAKAWA teaches that "by detecting the resistance of the pattern 71, the number of filling operations is known." MIYAKAWA col. 16, lines 40-42. MIYAKAWA apparently only teaches that that the detection pattern 71 indicates the number of refills of the recording cartridge 1 to the ink refilling apparatus 15 or to the user ("By [marking the cartridge at every refilling operation,] the user is notified with the arrival of the limit of the service life of the part." Id. at lines 33-35). However, MIYAKAWA never apparently indicates that the detection pattern 71 or the ink refilling apparatus 15 operate to indicate or determine any printer operational parameters such as stroke length, impact force, pulse width, relative ink density, length of the ink ribbon, and number of key strokes.

It is possible that the Examiner believe that MIYAKAWA's teaching of the detection pattern's indication when the refill limit of the recording ink cartridge has been reached discloses "defin[ing] at least one printer operational parameter." However, this indication does not apparently influence *printer* operational parameters—instead, this indication influences the operational parameters of the *ink refilling apparatus 15*. The purpose of this indication is only to indicate to the ink refilling apparatus 15 or to the user that the recording ink cartridge 1 has had its refill limit, i.e., that the maximum service life of the recording cartridge 1 is presumably met and the cartridge may be discarded. This teaching does not suggest or include printer operational parameters as recited in Claim 7.

Indeed, MIYAKAWA only teaches that the detection pattern 71 is utilized to determine the service life of the recording ink cartridge 1, and does not teach that the detection pattern 71 may influence or determine operational parameters of the printer. Although a cartridge may be required to print, determining service life of a cartridge is far different from determining operational parameters of the printer, which includes far more variables not accounted for in the simple determination of service life. For these reasons and others mentioned herein, Applicant respectfully requests that the Examiner indicate that Claim 7 is allowable.

2. *The Detection Pattern 71 Does not Apparently Disclose the "Printer Readable Resistive Ink Identifier"*

MIYAKAWA does not apparently teach a "printer readable resistive ink identifier" as recited in Claim 7. The detection pattern 71 may be interpreted by the Examiner to be the "printer readable resistive ink identifier" because both items are disposed on the housing of the cartridge. However, the detection pattern 71 is not readable by the printer as recited in Claim 7.

MIYAKAWA does not apparently teach that the detection pattern 71 may be readable by the printer. As detailed above, the detection pattern 71 is used only by the ink refilling apparatus 15 to determine the number of refills of the recording ink cartridge 1. Indeed, the detection pattern 71 is never analyzed, read, or responded to by the printer itself. Further, as stated in MIYAKAWA, the detection pattern 71 is utilized by the ink refilling apparatus 15 alone. See *supra*. However, as recited in Claim 7, the "*printer readable resistive ink identifier . . . [has] a resistive value corresponding to at least one characteristic of the ink ribbon.*" Although it may be argued that the refill apparatus 15 may be used within the printer, the printer does not read any information from the refill apparatus 15 regarding the ink ribbon. Nor does the refill apparatus 15 affect other aspects of the printer, such as printer stroke, striking force, or impact length. Thus, MIYAKAWA fails to teach a "printer readable resistive ink identifier."

Therefore, because MIYAKAWA does not teach that the ink identifier is readable by the printer as recited in Claim 7, Applicant respectfully submits that the "printer readable resistive ink identifier" is not anticipated by MIYAKAWA.

3. *The Detection Pattern 71 Does not Apparently Correspond to a Characteristic of the Ink Ribbon*

MIYAKAWA does not apparently teach a "*resistive value corresponding to at least one characteristic of the ink ribbon.*" As stated above, MIYAKAWA teaches that the detection pattern 71 is simply used to determine the number of refills of the recording ink cartridge 1. Although the detection pattern 71 is utilized to count the number of refills of the

recording ink cartridge 1, MIYAKAWA does not teach or suggest that the detection pattern 71 to corresponds to ink ribbon characteristics.

Indeed, counting the number of refill operations is far different from indicating the distinct characteristics of the ink ribbon utilized in a cartridge. As noted *supra*, MIYAKAWA neither suggests nor teaches that the detection pattern 71 corresponds to the ink ribbon utilized in the cartridge. Therefore, MIYAKAWA fails to teach "*resistive value corresponding to at least one characteristic of the ink ribbon.*"

Therefore, because MIYAKAWA fails to disclose at least the above noted features of the present invention, Applicant submits that MIYAKAWA fails to disclose each and every recited feature of the instant invention, and that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b). Therefore, Applicant submits that the Examiner's rejection of independent Claim 7 is improper and should be withdrawn.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of Claim 7 under 35 U.S.C. § 102(b) and indicate that this claim is allowable over the art of record.

Further, Applicant submits that Claims 24 and 27-30 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention.

In particular, Applicant submits that MIYAKAWA fails to anticipate, *inter alia*, the use of the printer readable resistive ink identifier wherein the resistive value of the resistive ink identifier corresponds to the length of the ink ribbon, as is recited in Claim 24; wherein the resistive value of the resistive ink identifier is a function of a physical characteristic of the identifier, as is recited in Claim 27; wherein the resistive value of the resistive ink identifier is a function of the length of the identifier, as is recited in Claim 28; wherein the resistive value of the resistive ink identifier is a function of the width of the identifier, as is recited in Claim 29; wherein the resistive value of the resistive ink identifier is a function of material used to form the identifier, as is recited in Claim 30.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of Claims 7, 24, and 27-30 under 35 U.S.C. § 102(b) and indicate that these claims are allowable over the art of record.

Traversal of Rejection Under 35 U.S.C. § 103(a)

Applicant traverses the rejection of Claims 8 and 31 under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA in view of U.S. Patent No. 5,051,719 to Gaston et al. (hereinafter "GASTON"). Applicant also traverses the rejection of Claims 9, 25-26 and 32 under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA in view of U.S. Patent No. 5,506,611 to Ujita et al. (hereinafter "UJITA"). Applicant further traverses the rejection of Claim 10 under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA. Finally, Applicant traverses the rejection of Claim 33 as being unpatentable over Miyakawa in view of JP 4-246583 (hereinafter "'583").

A. In re dependant Claims 8 and 31

Claims 8 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA in view of GASTON.

Claims 8 and 31 both depend from independent Claim 7 and recite additional features that further define the present invention embodied in Claim 7. For the same reasons discussed *supra*, MIYAKAWA fails to teach or suggest at least the above-noted features of the instant invention, as recited in amended Claim 7. Applicant therefore submits that the combined teachings of MIYAKAWA and GASTON would not have suggested the invention as embodied in Claims 8 and 31 to one of ordinary skill in the art. Therefore, Applicant respectfully requests that the rejection of Claims 8 and 31 under 35 U.S.C. § 103(a) be withdrawn.

In particular, the combined teachings of MIYAKAWA and GASTON do not teach or suggest to one of ordinary skill in the art, *inter alia*, a printer readable resistive ink identifier wherein the resistive ink identifier is silk screened onto the housing, as is recited in Claim 8; wherein the resistive ink identifier is silk screened onto an exterior surface of the ink cartridge, as is recited in Claim 31.

Moreover, Applicant submits that Claims 8 and 31 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of Claims 8 and 31 under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the art of record.

B. In re dependent Claims 9, 25-26 and 32

Claims 9, 25-26 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA in view of UJITA.

Claims 9, 25-26 and 32 each depend, at least indirectly, from independent Claim 7 and recite additional features that further define the present invention embodied in Claim 7. For the same reasons discussed *supra*, MIYAKAWA fails to teach or suggest at least the above-noted features of the instant invention, as recited in amended Claim 7. Applicant therefore submits that the combined teachings of MIYAKAWA and UJITA would not have suggested the invention as embodied in Claims 9, 25-26 and 32 to one of ordinary skill in the art. Therefore, Applicant respectfully requests that the rejection of Claims 9, 25-26 and 32 under 35 U.S.C. § 103(a) be withdrawn.

In particular, the combined teachings of MIYAKAWA and UJITA do not teach or suggest to one of ordinary skill in the art, *inter alia*, a printer readable resistive ink identifier wherein the resistive ink identifier is printed onto a label disposable onto the housing, as is recited in Claim 9; wherein the resistive value of the resistive ink identifier corresponds to the ribbon material disposed in the ink cartridge, as is recited in Claim 25; wherein the resistive value of the resistive ink identifier corresponds to a material of the ink ribbon disposed in the ink cartridge, as is recited in Claim 26; and wherein the resistive ink identifier is applied to a label that is adhered to the ink cartridge, as is recited in Claim 32.

Moreover, Applicant submits that Claims 9, 25-26 and 32 are allowable at least for the reason that these claims depend from an allowable base claim and because these claims recite additional features that further define the present invention.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of Claims 9, 25-26 and 32 under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the art of record.

C. In re dependent Claim 10

Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over MIYAKAWA.

As similarly reasoned *supra*, Claim 10 depends from independent Claim 7. For the same reasons discussed *supra*, MIYAKAWA fails to disclose at least the above-noted features of the instant invention, as recited in amended Claim 7. Applicant therefore submits that the teachings of MIYAKAWA do not teach or suggest the invention as embodied in Claim 10 to one of ordinary skill in the art. Therefore, Applicant respectfully requests that the rejection of Claim 10 under 35 U.S.C. § 103(a) be withdrawn.

In particular, the teachings of MIYAKAWA does not teach or suggest to one of ordinary skill in the art, *inter alia*, a printer readable resistive ink identifier wherein the resistive ink identifier is *color coded to indicate at least one characteristic of the ink ribbon*, as is recited in Claim 10.

Applicant agrees with the Examiner in that purely ornamental features cannot be relied upon to patentably distinguish the claimed invention from the prior art. However, Applicant respectfully submits that the color of the resistive ink identifier is functional because it may provide further data regarding the ink ribbon.

Moreover, Applicant submits that Claim 10 is allowable at least for the reason that it depends from an allowable base claim and because it recites additional features that further define the present invention.

Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of Claim 10 under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the art of record.

D. In re dependant Claim 33

Claim 33 was rejected as being unpatentable over MIYAKAWA in view of '583.

As similarly reasoned *supra*, Claim 33 depends from independent Claim 7. For the same reasons discussed *supra*, MIYAKAWA fails to disclose at least the above-noted features of the instant invention, as recited in amended Claim 7. Applicant therefore submits that the combined teachings of MIYAKAWA and '583 do not teach or suggest the invention as embodied in Claim 33 to one of ordinary skill in the art. Therefore, Applicant respectfully requests that the rejection of Claim 33 under 35 U.S.C. § 103(a) be withdrawn.

Additionally, the Applicant respectfully submits that '583 is not enabling. When combined with the teachings of MIYAKAWA, the Applicant's claimed invention is not suggested to one of ordinary skill in the art. Neither MIYAKAWA nor '583 disclose a printer readable resistive ink identifier that corresponds to at least one characteristic of the ink ribbon.

'583, as provided by the Examiner, discloses "[*a*]*n information means indicating each-kind-identifying information is provided respectively to an ink ribbon cassette 2 and a tape cartridge 3, and a detection means of the identifying information is provided to a tape printer 1.*" However, '583 makes no suggestion to "regulate printer operation in response to" a printer readable resistive ink identifier. Instead, '583 describes the interaction of the information means and detection means for installation purposes: "*printer control part 23 of the tape printer 1 controls printing density so that an optimum printed result is obtained in combination of the ink ribbon cassette 2 and the tape cartridge 3 which are installed by read information of the detection means.*" This disclosure neither enables the Applicant's present invention, nor suggests the same.

In particular, the teachings of MIYAKAWA and '583 does not teach or suggest to one of ordinary skill in the art, *inter alia*, a printer readable resistive ink identifier *wherein the cartridge is engagable to a printer to regulate printer operation in response to the resistive value of the identifier*, as is recited in Claim 33.

Moreover, Applicant submits that Claim 33 is allowable at least for the reason that it depends from an allowable base claim and because it recites additional features that further define the present invention.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of Claim 33 under 35 U.S.C. § 103(a) and indicate that these claims are allowable over the art of record.

New Claims 34-41

Applicant further notes that Claims 34-41 have been added. Claim 34 further limits Claim 7 and recites the cartridge of Claim 7 *wherein the resistive value of the resistive ink identifier is fixed, the fixed resistive value correlating to the printer operational parameter for the ink ribbon.* Applicant submits that MIYAKAWA apparently fails to disclose at least the "fixed resistive value." MIYAKAWA does not apparently teach the "fixed resistive value" as recited in Claim 34 because the detection pattern 71 is a variable alterable by the pattern changing mechanism 72. Applicant notes that as understood, MIYAKAWA apparently teaches that the detection pattern 71 of the recording ink cartridge 1 is altered by the pattern changing mechanism 72 each time the recording ink cartridge 1 is refilled by the ink refilling apparatus 15. However, Claim 34 recites a "fixed resistive value" that is not alterable.

Additionally, Claim 35 further limits Claim 7 and recites the cartridge of Claim 7 *wherein the operational parameter is selected from the group consisting of stroke length, impact force, pulse width, relative ink density, length of the ribbon, and number of key strokes.* Claims 36-41 each respectively limit Claim 7 and recite the cartridge of Claim 7 wherein the operational parameter includes *stroke length, impact force, pulse width, relative ink density, length of the ribbon,* or *number of key strokes*, respectively.

Therefore, Applicant respectfully submits that new Claims 34-41 are allowable at least because they depend from an allowable base claim and further define an aspect of the present invention. Therefore, Applicant respectfully requests that the Examiner indicate that these claims are allowable.

CONCLUSION

Applicant respectfully submits that each and every pending claim of the present invention meets the requirements for patentability and respectfully requests the Examiner to indicate allowance of each and every pending claim of the present invention.

In view of the foregoing, it is submitted that none of the references of record, when considered individually or in any proper combination thereof, anticipate or render obvious the Applicant's invention as recited in each of Claims 7-10 and 24-41. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: January 10, 2005 By: _____

Bruce B. Brunda
Registration No. 28,497
Stetina Brunda Garred & Brucker
75 Enterprise, Suite 250
Aliso Viejo, California 92656
Telephone: (949) 855-1246
Fax: (949) 855-6371

Customer No.: 007663

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